# SERVICE INFORMATION

# ACM604
# MIXER AMPLIFIER

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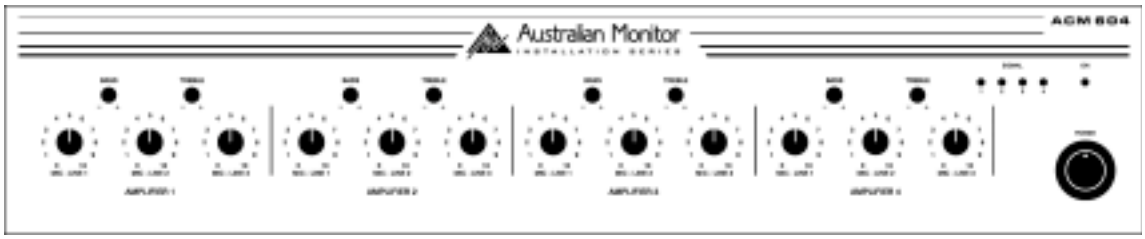
SCHEMATIC DIAGRAMS

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INSTALLATION SERIES

# ACM604

## 4 x 60w Mixer Amplifier

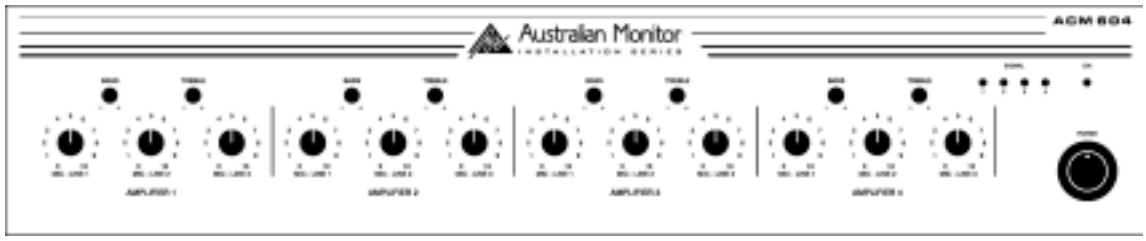



# Operating Manual

# ACM604, 4 x 60 Watt Mixer Amplifier

## Product Description

The ACM604 is a 4 x 60 watt mixer amplifier designed for commercial installations. It features 4 independent 60 watt mixer amplifiers within the one 2 rack unit chassis. Each amplifier features 3 balanced microphone/line input channels and outputs for either low impedance (8 ohm) or 70v/100v line speaker systems. A host of unique features including VOX muting, VCA master level control and optional tone generator/VOX relay cards make the ACM604 a very flexible amplifier. The unit can be mounted in a standard 19" equipment rack (rack ears supplied) or it can be used on a shelf or table.




## Front Panel Features

### Input Level Controls

The front panel is split into 4 sections, one for each mixer amplifier. The level controls for each amplifier are labelled Mic-Line 1 through to Mic-Line 3. These level controls are used to set up a suitable "mix" of all the various input sources connected to each amplifier, for example microphones, CD players, cassette decks. If a master level control is desired per amplifier, an external 500-1K ohm pot can be connected (per amplifier) to the rear panel for remote control of the master level of each amplifier.

### Bass Control

Each amplifier within the ACM604 includes a recessed, screwdriver adjustable 2 band equalisation system. The Bass control allows the user to increase or decrease the amount of bass in the system. The control allows for 12dB of cut or boost at 100Hz. If no bass cut or boost is required, the control should be left in the centre position.

### Treble Control

Each amplifier within the ACM604 includes a recessed, screwdriver adjustable 2 band equalisation system. The Treble control allows the user to increase or decrease the amount of treble in the system. The control allows for 9dB of cut or boost at 10kHz. Generally, a small increase of the treble control makes a system sound 'brighter'. If no treble cut or boost is required, the control should be left in the centre position.

### VCA Master Control

For applications requiring remote level control, provision has been made on the rear panel of the ACM604 to connect an external 500-1K ohm pot for remote control of the master level of each amplifier.

### Power Switch & "On" LED

The black rocker switch on the right hand side of the front panel is used to switch the amplifier on and off. The 'up' position is on. When the amplifier is connected to an appropriate AC power source and is switched on, the blue on LED will illuminate.

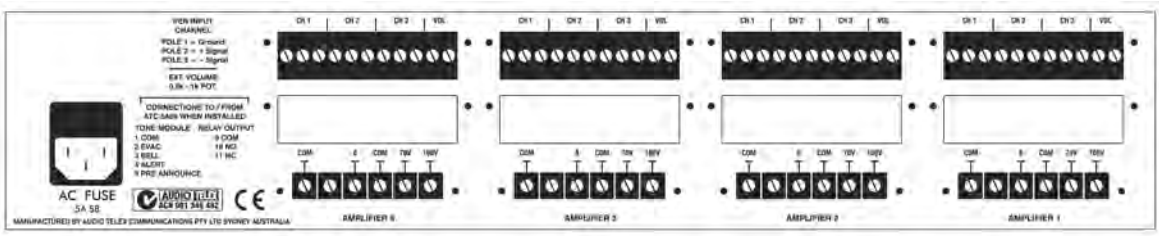
### Signal LED's

The four green "Signal" LED's located next to the On LED indicates that the ACM604 is passing audio. One LED is provided per amplifier. The signal LED is a simple method to trouble-shoot installations especially in multi-amplifier projects.

## Rack Mounting

The ACM604 is supplied with rack ears attached to allow mounting within a standard 19" equipment rack. As is the case with almost all audio products, adequate ventilation and air flow is required. When installing multiple ACM amplifiers within the one rack, it is recommended that at least 1 rack unit of ventilation space is left between every two amplifiers.

For table or shelf mounting, the rack ears can be removed using a screwdriver. Once the rack ears are removed, please reinstall the screws.




# Rear Panel Features

## AC Power Inlet

The 3 pin IEC power inlet is located on the bottom left of the rear panel and accepts a standard mains power lead fitted with an IEC connector. Before plugging in a power lead, please check the rear panel of the amplifier to ensure that the voltage label shows the correct AC operating voltage for your part of the world. The inlet is equipped with an in-built AC fuse holder fitted with a 5 Amp slow blow fuse plus a spare fuse. **Please ensure that the mains power cord is disconnected before attempting to check or replace this fuse.** Power consumption is 400 watts (max).

## Mic/Line Input Terminal Strip

Located on the top half of the rear panel are the input connections for all 4 amplifiers. Each amplifier will accept balanced microphone or line inputs (selectable via an internal dip switch). Additionally, a remote pot can be connected to each amplifier for external control of the master level.

The rear panel is split into four sections, one for each amplifier. Looking at the back panel and reading from left to right the amplifiers are 4, 3, 2 and 1. In other words, the input and output section is directly behind the relevant front panel controls.

The inputs are labelled Ch1, Ch2 and Ch3. All are balanced with the connection reading left to right as "Ground, + positive, - negative". Each input can be switched to be either mic or line level via a dip switch behind each input and accessible through the top lid. Additionally, phantom power (+18v DC) is selectable per input. The dip switch settings are:

**Balanced Mic Level** - 1 and 2 On
**Balanced Line Level** - 1 and 2 Off
**Phantom Power (+18v)** - 3 'On' to enable phantom power or 'Off' to disable phantom power

## VCA Remote Master Level Control

Located on the right side of each input terminal strip is a two position screw terminal block for an external pot. For remote master level control, an external 500-1K ohm pot can be connected per amplifier.

## Speaker Output Terminal Strip

Located on the bottom half of the back panel is the speaker output terminal strip. Four separate speaker output terminal strips are provided, one for each amplifier. Looking at the back panel and reading from left to right the amplifiers are 4, 3, 2 and 1. In other words, the speaker output section is directly behind the relevant front panel controls.

Each of the four amplifiers in the ACM604 can work with 8 ohm and/or 70/100 volt line speakers systems.

The various outputs are marked as follows:

| | |
|---|---|
| **COM** | Common or "-" for low impedance speaker loads (8 ohms). |
| **8** | Positive "+" for 8 ohm speaker loads (use with common) |
| | |
| **COM** | Common or "-" for 70v or 100v speaker loads (maximum load of 160 ohms at 100v) |
| **70** | Positive "+" for 70v line speaker loads (use with common) |
| **100** | Positive "+" for 100v line speaker loads (use with common) |

Please ensure that the correct "Common" is used. Low impedance and 70/100v loads can be used simultaneously but please pay careful attention to the overall speaker load. When used individually, the low impedance load should be 8 ohms or higher while the 100v line load should not fall below 160 ohms. When both outputs are used simultaneously, ensure that neither output is loaded to maximum.

## VOX Muting

The ACM604 includes a VOX muting circuit which is independent for each amplifier. The unit is factory set so that input 1 of each amplifier has VOX priority over inputs 2 and 3 for that amplifier. Basically, when signal is present on input 1, audio from inputs 2 and 3 is muted. As mentioned, each amplifier is totally independent so the VOX circuit from one amplifier does not affect any of the other amplifiers.

Muting can be defeated per amplifier via an internal jumper labelled JP2 (located on the top board behind inputs 1 and 2. The ACM604 is shipped with muting enabled (jumper towards the front panel of the amplifier). To disable VOX muting per amplifier, simply move the relevant jumper (from amplifiers 1, 2, 3 or 4) so that it is closest to the back panel.

## Optional ATC5489 Tone Generator/Vox Relay Card

An optional Tone Generator/Vox Relay card is available for the ACM604. Each card suits one amplifier within the unit so up to 4 cards can be installed. The card slots in between the input terminal strip and the output terminal strip on the rear panel of the amplifier. Simply remove the two screws and blanking plate, slide in the ATC5489 and replace the screws. The card provides a 4 tone generator module (Pre-Announce, Bell, Alert and Evacuate tones) per amplifier and also provides a VOX triggered relay output per amplifier. Full installation and operation instructions are included with the ATC5489.

# Important Safety Information

1. **Save the carton and packing material even if the equipment has arrived in good condition.** Should you ever need to ship the unit, use only the original factory packing.

2. **Read all documentation before operating your equipment.** Retain all documentation for future reference.

3. **Follow all instructions** printed on unit chassis for proper operation.

4. **Do not spill water or other liquids into or on the unit,** or operate the unit while standing in liquid.

5. **Make sure power outlets conform to the power requirements** listed on the back of the unit.

6. **Do not use the unit if the electrical power cord is frayed or broken.** The power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords and plugs, convenience receptacles, and the point where they exit from the appliance.

7. **Always operate the unit with the AC ground wire connected** to the electrical system ground. Precautions should be taken so that the means of grounding of a piece of equipment is not defeated.

8. **Mains voltage must be correct and the same as that printed on the rear of the unit.** Damage caused by connection to improper AC voltage is not covered by any warranty.

9. **Have gain controls on amplifiers turned down during power-up** to prevent speaker damage if there are high signal levels at the inputs.

10. **Power down & disconnect units from mains voltage before making connections.**

11. **Never hold a power switch in the "ON" position if it won't stay there itself!**

12. **Do not use the unit near stoves, heat registers, radiators, or other heat producing devices.**

13. **Do not block fan intake or exhaust ports.** Do not operate equipment on a surface or in an environment which may impede the normal flow of air around the unit, such as a bed, rug, weathersheet, carpet, or completely enclosed rack. If the unit is used in an extremely dusty or smoky environment, the unit should be periodically "blown free" of foreign matter.

14. **Do not remove the cover.** Removing the cover will expose you to potentially dangerous voltages. There are no user serviceable parts inside.

15. **Do not drive the inputs with a signal level greater than that required to drive equipment to full output.**

16. **Do not connect the inputs / outputs of amplifiers or consoles to any other voltage source,** such as a battery, mains source, or power supply, regardless of whether the amplifier or console is turned on or off.

17. **Do not run the output of any amplifier channel back into another channel's input. Do not parallel- or series-connect an amplifier output with any other amplifier output.**

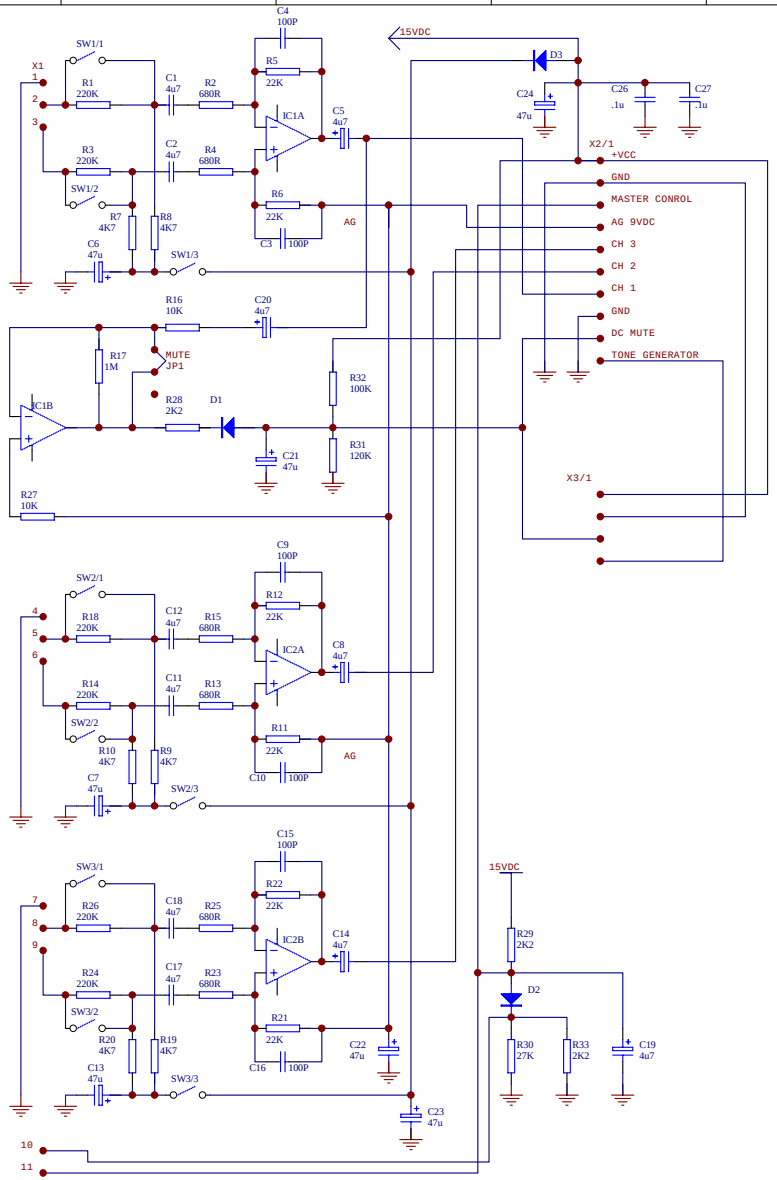
*Audio Telex Communications Pty Ltd is not responsible for damage to loudspeakers for any reason.*

18. **Do not ground any red ("hot") terminal. Never connect a "hot" (red) output to ground or to another "hot" (red) output!**

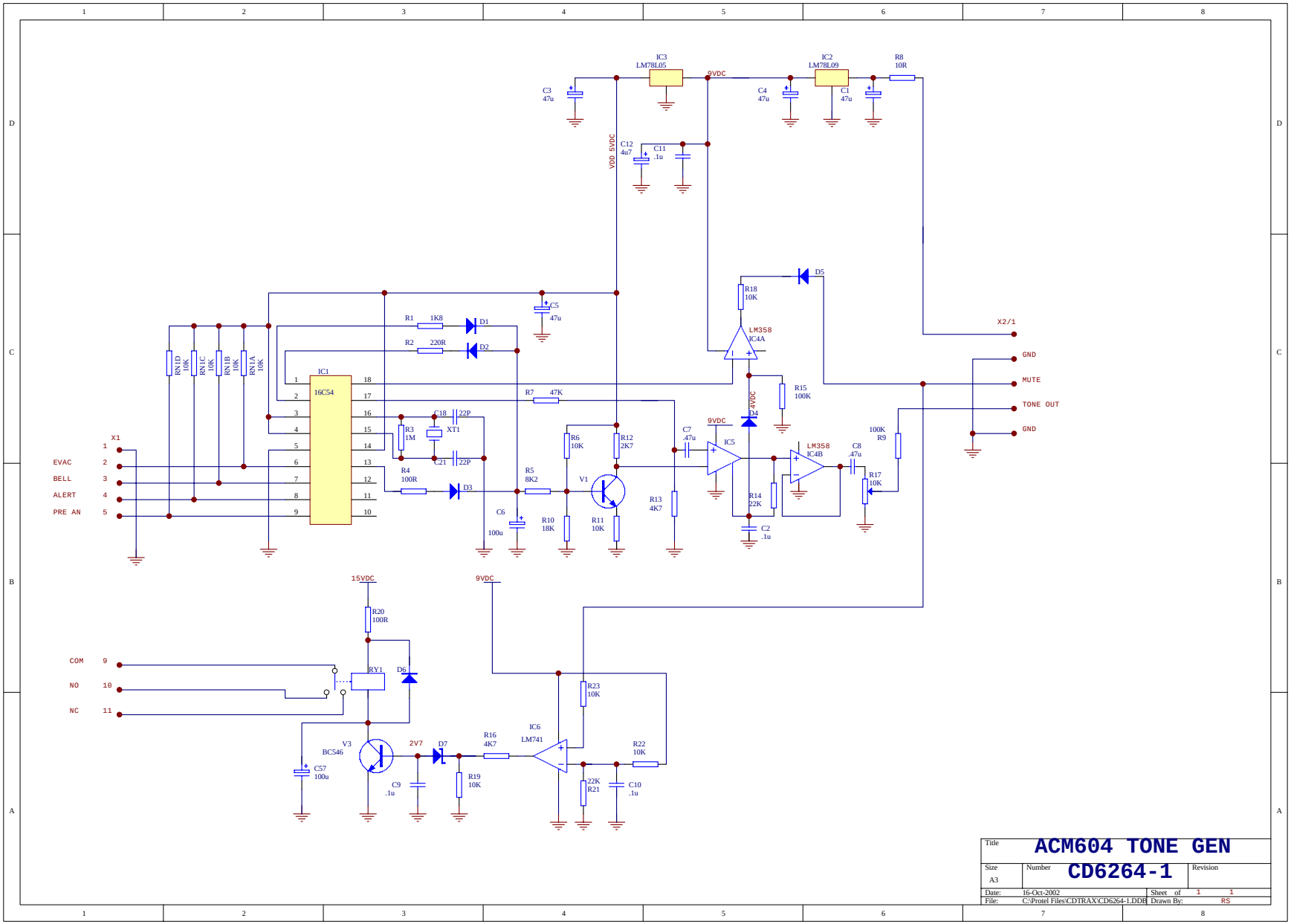
19. **Non-use periods.** The power cord of equipment should be unplugged from the outlet when left unused for a long period of time.

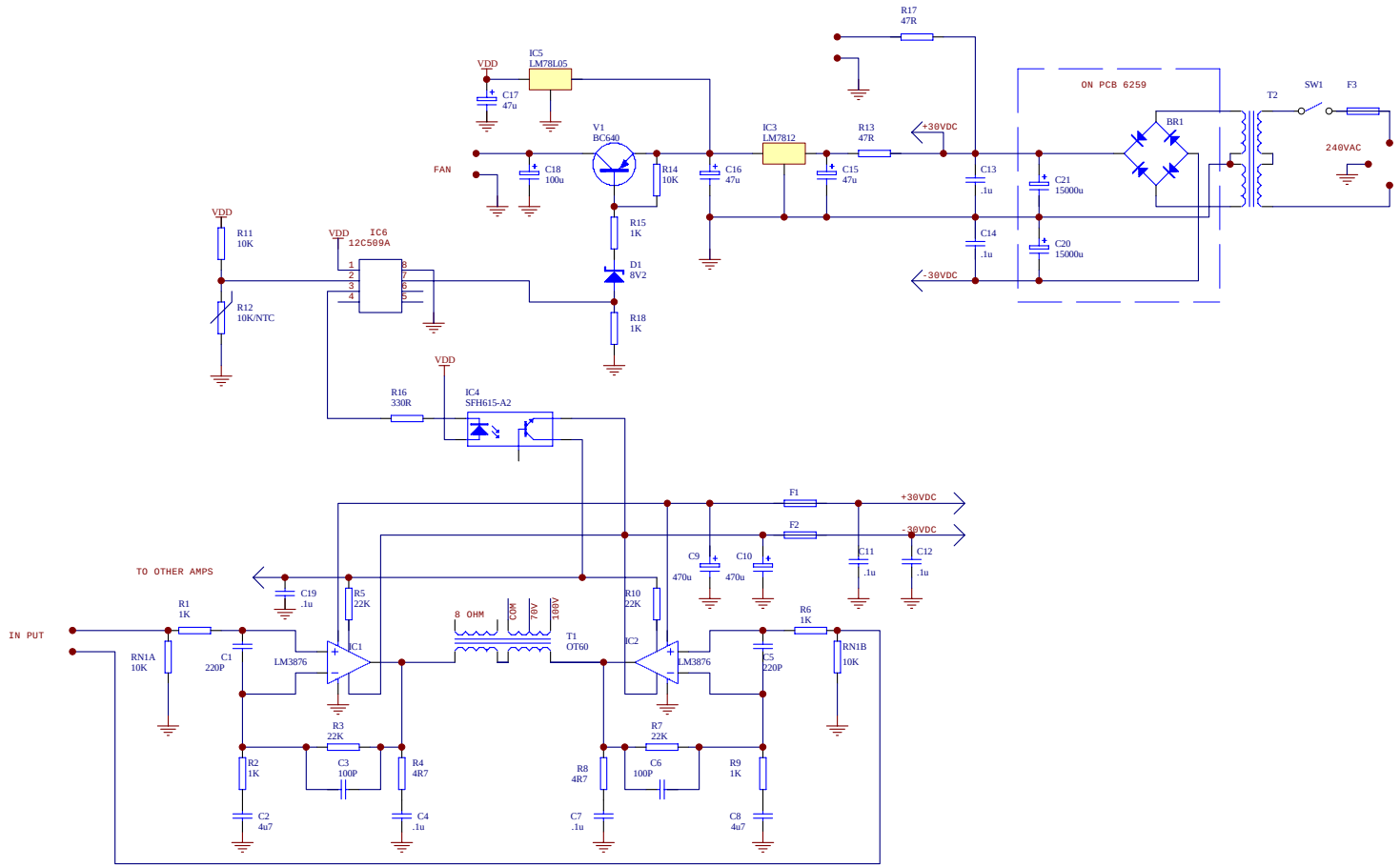
20. **Service Information** Equipment should be serviced by qualified service personnel when:

**A.** The power supply cord or the plug has been damaged.
**B.** Objects have fallen, or liquid has been spilled into the equipment
**C.** The equipment has been exposed to rain
**D.** The equipment does not appear to operate normally, or exhibits a marked change in performance
**E.** The equipment has been dropped, or the enclosure damaged.

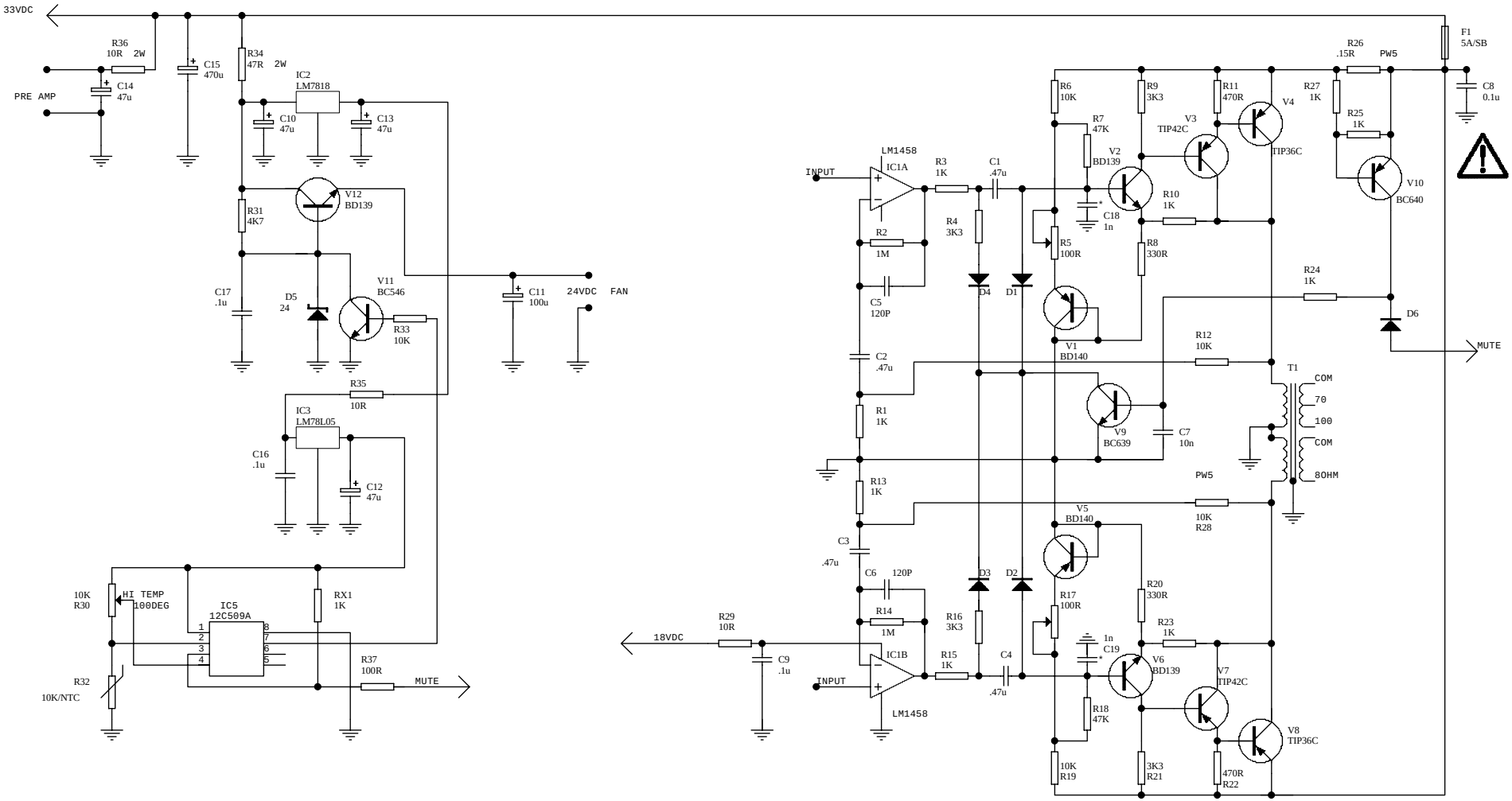



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IC3
LM78L05
9VDC
IC2
LM78L09
R8
10R
C3
47u
C4
47u
C1
47u
VDD 5VDC
C12
4u7
C11
.1u
D5
R18
10K
X2/1
GND
MUTE
TONE OUT
GND
LM358
IC4A
R15
100K
4VDC
C24
R1
1K8
D1
R2
220R
D2
C5
47u
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16C54
RN1D
10K
RN1C
10K
RN1B
10K
RN1A
10K
R7
47K
C18
22P
XT1
C21
22P
R3
1M
R4
100R
D3
R5
8K2
C6
100u
R6
10K
R12
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COM
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RS




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| Date: 16-Oct-2002 | | Sheet of 1 1 | |
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*SOLDERED UNDER PCB

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